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February 1972

North Vietnam's Trucks and the WarIntroduction

Throughout the war in Indochina, trucks supplied by Hanoi's Communist patrons--principally Communist China and the USSR--have played a vital role in the enemy's logistical activities both within North Vietnam itself and in Laos. Allied air strikes--concentrated since 1968 along the Ho Chi Minh trail in southern Laos and to a much lesser extent in North Laos--have exacted a large toll in trucks destroyed, but heavy imports of trucks into North Vietnam have offset these losses. The truck inventories currently maintained by North Vietnam are about double the levels maintained in the early years of the war. This memorandum reviews the present evidence of truck inventories and locations in North Vietnam and Laos. It also presents an overview of reported truck destruction since 1965 and the import levels that have enabled the North Vietnamese to cope with their heavy truck losses.

Trucks in North Vietnam

Since the cessation of bombing in 1968, North Vietnam has concentrated its stock of trucks in large storage areas in northern North Vietnam, many in the Hanoi and Haiphong areas. During 1971, the number of trucks in these parks was the highest ever noted, reaching a peak level of about 6,000 trucks in October 1971. These unprecedentedly large truck inventory holdings were probably due, at least in part, to the 1971 floods, which may have led the North Vietnamese to store trucks in these holding parks to avoid the disrupted transport system farther south.

2600  
500

The largest park at that time was at Dong Dang, on the North Vietnam/China border, [redacted] showed some 2,600 trucks in storage. Other large truck park areas are at:

- Le Nhuong near Kep airfield northeast of Hanoi where 500 trucks were observed in November;

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- 500 -- Mai Thinh, also near Kep, which held 500 trucks as of January 1972;
- 330 -- An Khe, near Haiphong, which for years has been a prime holding area for vehicles arriving through the port. It held only 330 trucks in October--a reflection of the shift in the past year or so from seaborne imports to rail imports;
- 1300 -- Xuan Mai, about 25 miles west of Hanoi in a military training area, which always holds large numbers of vehicles, had some 1,300 trucks in December 1971 (because Xuan Mai probably is a repair and training as well as storage facility, some of these trucks are not in "storage" in a strict sense).
- Total 5230

In all, there are more than 50 areas in northern North Vietnam where trucks have been stored at one time or another. The smaller ones usually hold under 50 and the larger ones several hundred trucks. This large number of dispersed truck parks and the infrequent photographic coverage of North Vietnam has made it difficult to keep close tabs on the inventory levels at many of these locations. In general, it appears that in recent years there has been a shift from use of the Haiphong port area for storing trucks to areas near the Hanoi-Dong Dang rail line, the main overland link to China. It has been difficult to establish a seasonal pattern to the level of stocks, if, in fact, there is one. Apparently the enemy plans well in advance. The increased truck inventory noted throughout 1971 probably reflected, in part, increased deliveries to compensate the truck losses sustained during Operation Lam Son 719 in southern Laos during February and March. It also undoubtedly reflected an accumulation of trucks in preparation for the 1971-72 dry season. The higher level of imports projected for 1972 suggests that the enemy is already preparing to counter anticipated heavy truck losses during this dry season.

#### Trucks in the Laos Panhandle

The Communists maintain a substantial inventory of vehicles in the Laos Panhandle for use in moving supplies (and at times

personnel) along the Ho Chi Minh trail toward Cambodia and South Vietnam. The current estimate of the truck inventory maintained in southern Laos is 2,000 to 3,000, the actual number probably being near the upper end of the range. The size of the truck inventory in the Panhandle is constrained by the concentrated air interdiction campaign against transportation routes and vehicles. This bombing has caused the North Vietnamese to keep on hand only sufficient trucks to sustain the required levels of logistic activity.

The bombing has also made the Communists disinclined to establish large concentrated vehicle parks in the Laos Panhandle. Instead, vehicles are dispersed along the entire logistics corridor, under the control of transportation battalions subordinate to the major logistic entities. The level of activity undertaken in a given area of the Panhandle determines the size of its vehicle inventory. Thus, in the northern Panhandle where logistic activity is heaviest, a logistic entity may control as many as 300 vehicles. Farther south, as the level of logistic activity decreases, vehicle inventories also decrease.

The standard practice followed by the Communists is to disperse vehicles within a given geographic area in the Panhandle as much as possible. Despite this dispersal, however, some relatively small vehicle parks exist where vehicles can be stored when not in use or taken for repair or maintenance; but these can consist of only a few acres of cleared land under heavy jungle canopy, or one of the many camouflaged caves near some major routes. They seldom would contain more than 10 to 20 vehicles at any one time. Similarly, the life-span of a vehicle storage area in southern Laos may be relatively short; with constant aerial reconnaissance and bombing underway, the continual establishment of new truck parks is a necessity.

### Enemy Truck Losses

During 1971, the Air Force reported nearly 18,000 trucks destroyed and 7,000 damaged, based primarily on pilot observations. The Washington intelligence community has long recognized pilot reporting of truck losses probably overestimated the actual situation. Thus, it has applied a deflation formula to derive a figure called "effective" losses. The formula--effective losses equals 75% of trucks reported destroyed plus 25% of those reported

damaged--allows for the capability of the North Vietnamese to repair trucks and for inaccuracies in pilot reporting. Using this formula, there have been nearly 48,000 truck losses during the years 1965-71 as shown in the following tabulation. \*

	<u>Effective Losses</u>
Total	47,600
1965	400
1966	4,000
1967	5,300
1968	9,500
1969	6,000
1970	7,200
1971	15,200

Even this deflation formula may overstate truck losses, however. Since the beginning of the war, it is estimated that North Vietnam has imported 36,400 trucks, or about one-fourth less than the calculation of effective truck losses. However, its current inventory of roughly 18,000-23,000 trucks is about double the inventory of 10,000-12,000 maintained during the early years of the war. Another possible cause of this apparent discrepancy--besides the overstatement of truck losses--is the fact that truck import data may be understated. Thus, it has never been possible to equate losses in any given year to import and inventory levels.

Although it is difficult to estimate the number of truck losses (with any precision), there is no doubt that they have been increasing substantially in recent years. The 15,200 effective losses in 1971 were more than twice those in 1970, and almost treble the 1967 level of 5,300. The sharp increase in recent years is primarily attributable to the concentration of the air campaign against targets in southern Laos and to increased use of the highly effective truck-killing AC-130

\* For a detailed breakout of truck losses, see Appendix A.

and AC-119 gunships. The high level of planned truck imports in 1972 from the USSR -- about 5,600 -- some 40% greater than the previous high of 4,000 trucks imported from the USSR in 1967, is in part a reflection of the effectiveness of these gunships.

### Imports

Hanoi's ability not only to maintain its truck inventory but to increase it over the past few years, in the face of the heavy losses to air attack, is attributed to the ingenuity of its maintenance personnel and more importantly to the support of the Bloc.

North Vietnam's Communist allies have willingly supplied the trucks needed for the enemy's logistical effort throughout the war. North Vietnam has imported by sea and rail more than 36,000 trucks since 1965 as shown in the tabulation below: \*

### Estimated Truck Imports

	<u>Units</u>
Total	36,400
1965	3,500
1966	4,700
1967	6,800
1968	4,700
1969	6,800
1970	5,900
1971	4,000 *

\* Preliminary

The USSR provided about half of the total, Communist China about one-fourth, and Eastern Europe the remaining one-fourth. Truck imports nearly doubled from 3,500 in 1965 to a peak of more than 6,800 in 1967 as the war escalated. Although imports apparently have dipped below this level in three of the four years since 1967, there have never been any indications that trucks were in short supply in North Vietnam or that Hanoi's requests for trucks have been refused.

\* The distribution of truck imports by country of origin is shown in Appendix B.

Furthermore, the relatively low figure for 1971 probably will rise when more complete information becomes available later in the year on imports from the USSR.

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Appendix ACommunist Truck Losses in North Vietnam and Laos

	<u>Destroyed*</u>	<u>Damaged*</u>	<u>Effective Losses**</u>
1965	358	519	399
1966	4,035	3,732	3,959
1967	6,042	2,886	5,254
1968	11,243	4,206	9,478
1969	6,868	3,224	5,960
1970	8,016	4,922	7,243
1971	<u>17,757</u>	<u>7,327</u>	<u>15,150</u>
Total	54,319	26,816	47,543

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\* As reported by 7th Air Force.

\*\* Effective truck losses are computed by taking .75 the number of trucks reported destroyed + .25 the number of trucks damaged.



### Appendix B

#### North Vietnam's Estimated Imports of Trucks By Country of Origin

	<u>1965-71</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>Units</u> <u>1971 *</u>
<b>Total</b>	<b>36,400</b>	<b>3,500</b>	<b>4,700</b>	<b>6,800</b>	<b>4,700</b>	<b>6,800</b>	<b>5,900</b>	<b>4,000 *</b>
<b>USSR</b>	<b>18,400</b>	<b>1,000</b>	<b>1,800</b>	<b>4,000</b>	<b>2,200</b>	<b>3,900</b>	<b>3,500</b>	<b>2,000</b>
<b>Eastern Europe</b>	<b>9,500</b>	<b>1,200</b>	<b>1,700</b>	<b>1,600</b>	<b>1,300</b>	<b>1,700</b>	<b>1,200</b>	<b>800</b>
<b>PRC**</b>	<b>8,500</b>	<b>1,300</b>	<b>1,200</b>	<b>1,200</b>	<b>1,200</b>	<b>1,200</b>	<b>1,200</b>	<b>1,200</b>

\* Preliminary estimate for 1971 may understate actual truck imports because of the paucity of data on rail shipments. The Soviet trade handbook, available by next autumn, will probably show higher totals.

\*\* Limited data has been available on PRC truck shipments since 1965. It has been agreed by CIA and DIA that 100 per month represents a reasonable estimate for Chinese imports since 1965.